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(54) **Coin-operated gaming machine with additional prize chance**

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Patent Claims

1. Coin-operated gaming machine with prize symbols viewed through a window, and rotating bodies coupled with a prize-scanning device, the prize-individual outputs of which produce signals, which are transferred to addition inputs of a readable balance counter for money, or for special games depending on the prize type, and with prize display elements, each connected to prize-individual memory elements, which form an additional prize field, on which additional prizes depending on the placement, in that the memory elements (15) connected as a step switch device (14) contain the outputs (i.e. 12) of the placement inputs (i.e. 13) connected to the prize scanning device (11) for prizes, the outputs (i.e. 16), which can be connected with the prize display elements (i.e. 18) on one hand, and with the addition inputs of each balance counter (21, 22) via gates (23, 24) to be opened by a guarantee signal, as well as impulse inputs (31, 32, 35), the energization of which can be controlled by a random generator (27) with result outputs (33, 34) for changing the placement edge of the memory element (15). At least one key (25, 26) is intended for the activation-dependent feed of the guarantee signal to the gates (23, 24), or a request signal to the random generator (27), and the prize display elements (i.e. 18) are arranged in the shape of a band (19) displaying an increasing prize graduation.
2. Coin-operated gaming machine according to claim 1, in that the prize display elements (i.e. 18) each successively provide a display of double of the prize amount, and that exclusively either one or the other of the two result outputs (33, 34) of the random generator (27) are energized, and that one of them (33) is connected to a placement status-reducing impulse input (32, 35) of the step switch device (14).
3. Coin-operated gaming machine according to claims 1 or 2, in that the key (25) for the prize treatment in its resting state controls the request signal to the random generator (27), and in activated state controls the guarantee signal to the gate (23) of the balance counter (21), and that an additional key (26) is intended for the special game treatment, which in its resting state controls the guarantee signal to the gate (24) of the special game counter (22), and in its activated state controls the request signal to the random generator (27).
4. Coin-operated gaming machine according to one of the claims 1 to 3, in that the random generator (27) is designed of an additional, slowly moving rotating body (28) with arrows (28') pointing upwards or downwards, which can be viewed in an additional window (29), which is immobilized at random, whereby depending on the arrow (28') shown, one or the other result output (33, 34) is energized.
5. Coin-operated gaming machine according to claim 4, in that at equal amount of the arrows (28') pointing upwards or downwards, the

placement status-reducing impulse input (32) is the reset input (R) of the step switch device.

6. Coin-operated gaming machine according to claim 4, in that at half of the amount of the arrows pointing upwards as compared to the arrows pointing downwards, the placement status-reducing impulse input is the step switch device (35) of the step switch device (14).

7. Coin-operated gaming machine according to one or several of the preceding claims, in that the step switch system (14) is designed of an electronic-magnetic activated roll counter, the roll of which carries the band (19) on its outer surface, the prize display elements (i.e. 18, 20) of which can be viewed individually through an additional window.

The invention relates to a coin-operated gaming machine with prize symbols on rotating bodies viewable through a window, which is coupled with a prize scanning device, the prize-individual outputs of which release signals, which are fed into addition inputs of a readable balance counter for money or for special games corresponding to the prize type, and which contains prize display elements each connected with prize-individual memory elements, which form an additional prize field on which placement-dependent additional prizes can be achieved.

Coin-operated gaming machines of this type are found in various designs at bars and arcades. They often contain three rotating bodies, which can be designed in the shape of drums or disks, and which carry prize symbols on their outer surface viewable through a window. During a game, the rotating bodies are immobilized one after the other, after which the symbol combination received decides on either prize, or loss. In this design, monetary prizes of varying amounts, as well as special game prizes can be expected at a higher chance of winning as opposed to the normal game.

Therefore, a coin-operated gaming machine with rotating disks, or drums is known from GE-GM 18 29 842, in which monetary prizes are paid out at certain numbers or icon combinations. In order to make this simple game more interesting, the use of an additional disk or drum is considered, which enables the player to continue play with a possible prize, whereby this prize can be multiplied considerably, or lost. For this purpose, two prize symbol-rotating bodies are intended, which are assigned a manually activated third rotating body with prize symbols such as "triple", or "loss". By manually activating this third rotating body, a single additional prize in combination with the other two rotating bodies can be achieved during the course of the game, which cannot be maintained afterwards, i.e. in the next game, but will be canceled by the new activation of the rotating body. In case a prize is won, an operating contact is activated by a rotating disk cam, which causes the magnet coil of a money payout slide to be energized for the respective payout. In this way,

however, no balance can be accumulated, as a direct payout always takes place immediately after each single game when a prize won, which excludes an electronic or mechanic balance accumulation.

An additional incentive to play due to an additional chance of winning would be therefore provided by a prize accumulation in an additional prize field from various prize display elements, which illuminate when certain prizes are achieved.

The invention is therefore based on the task to create a coin-operated gaming machine of the previously mentioned type with an additional prize field as an increased incentive to play.

This task is solved by the invention in that the memory elements connected as a step switch device contain the outputs of the placement inputs connected to the prize scanning device for prizes, the outputs, which can be connected with the prize display elements on one hand, and with the addition inputs of each balance counter via gates to be opened by a guarantee signal, as well as impulse inputs, the energization of which can be controlled by a random generator with result outputs for changing the placement edge of the memory element. At least one key is intended for the activation-dependent feed of the guarantee signal to the gates, or a request signal to the random generator, and the prize display elements are arranged in the shape of a band displaying an increasing prize graduation.

If, therefore, the prize scanning device recognizes a prize-bringing combination of the rotating body, a signal is generated at its prize-respective output, which is initially registered into one of the memory elements connected to the step switch device, after which the prize display element connected to the respective output of the placed memory element makes the prize viewable. The prize displayed can then be credited by a guarantee signal, which opens the respective gate to the balance counter. Otherwise, the random generator is started, which influences the placement status of the step switch device via a result output in the sense of higher prizes, or in case of a different result output, in the sense of lower prizes achieved. The decision, whether the prize achieved should be accepted, or risked for a possible higher prize, is the player's sole choice, who has a selection switch available for this purpose.

In this way, a prize displayed via the gates and the balance counter, can be either credited, or changed via the result outputs of the random generator in the sense of higher or lower prizes, and simultaneously displayed in the form of a prize band, which starts with a prize display element displaying the lowest prize amount, and which contains the additional prize display elements in the form of an increasing prize graduation, which substantially increases the player's incentive to keep playing due to the substantially improved display of the chances of winning.

The band of the prize display elements reflecting the prize graduation in this design, for instance, can display cash prizes in the lower area, and special games in the upper area so that the player may achieve special games beyond the legal maximum amount of cash prizes.

A substantial design of the inventive coin-operated gaming machine

consists of the fact that the prize display elements each successively make double of the prize amount viewable, and that exclusively either one or the other of the two result outputs of the random generator are energized, and that one of them is connected to a placement status-reducing impulse input of the step switch device.

In addition to an attractive game provided especially to the player who likes to take risks, the coin-operated gaming machine manufacturer also has the possibility in the design of such a coin-operated gaming machine to fall back on a proven model, and merely equip the coin-operated gaming machine with the assembly parts necessary for the additional prize possibility.

A further design of the inventive coin-operated gaming machine consists of the fact that the key for the money prize treatment in its resting state controls the request signal to the random generator, and in its activated state controls the guarantee signal to the gate of the balance counter, and that an additional key is intended for the special game treatment, which in its resting state controls the guarantee signal to the gate of the special game counter, and in its activated state controls the request signal to the random generator. This causes an achieved money prize automatically being transferred to the risk disposition when the key is not activated, while an achieved special game prize can only be set to the doubling of the prize by activating the key.

The random generator can suitably designed with an additional, slowly moving rotating body containing arrows pointing upwards and downwards, which can be viewed through an additional window. This rotating body is immobilized at random, whereby depending on the arrow displayed, one or the other result output is energized. Due to the slow rotation speed, the player may then recognize by the numeric distribution of the arrows pointing upwards or downwards, how great his chance is to double or lessen his prize.

With the same amount of arrows pointing upwards or downwards, the reset input of the step switch device can be selected as the placements status-reducing impulse input.

Alternatively, the amount of arrows pointing upwards can be half as high as the amount of arrows pointing downwards, and in this case the step switch input of the step switch device can be selected as the placement status-reducing impulse input.

In both cases it is ensured at long range that the special prizes and losses are balanced. The player can decide in each winning case, whether to accept the prize, or whether he wishes to sacrifice all or part of it for the possibility of doubling it.

A further beneficial design of the inventive coin-operated gaming machine consists of the fact that the step switch system is designed with an electro-magnetically activated roll counter, the roll of which carries the band on its outer surface, the prize display elements of which are individually viewable through an additional window.

This results in the benefit that only one assembly is necessary for the step switch and the display on one hand, and that it requires no buffer means on the other hand, as is common in the use of an electronically operated slide

register, such as in the form of batteries.

The invention is described in the following examples with reference being made to the drawing. They show

Fig. 1 a front view of an example of a coin-operated gaming machine with additional prize chances, and
Fig. 2 a diagram of invention-essential components of the coin-operated gaming machine according to Fig. 1.

The drawing in Fig. 1 shows a coin-operated gaming machine identified by 1 in its entirety in a schematic view, with a front disk 2, behind which the three drum-shaped rotating bodies 3, 4, and 5 are located, as identified by three broken lines. The rotating bodies 3, 4, and 5 carry rows of prize symbols on their circumferences, which display the game result with three symbols of the left rotating body 3 viewable through a three-part window 6, two symbols of the center rotating body 4 through a double window 7, and one symbol of the right rotating body 5 through a single window 8. A prize is achieved when at least the same symbol is viewable in each window 6 to 8, for instance, according to Fig. 1 the symbol "80", whereby a monetary prize of DM 0.80 is achieved in this case, which can be credited to a balance displaying counter 9.

In addition to monetary prizes, special games may also be achieved, which can be credited to a balance displaying counter 10. A prize key at an increased winning chance is used for special games. An average of DM 1.60 is won per special game.

Fig. 2 shows a diagram of the inventive-essential components of the coin-operated gaming machine according to Fig. 1, which have the same reference symbols as in Fig. 1, as far as they are the same components.

The rotating bodies 3 to 5 are coupled with a prize scanning device 11. It is assumed that a monetary prize in the amount of DM 0.80 is achieved. The prize scanning device 11 therefore connects a prize plus to the corresponding prize output 12, which is connected to a prize-individual placement input 13 of a step switch device 14, which is described in detail in the following sections. The placement input 13 is simultaneously the set input 5 of a prize-individual memory element 15, which is placed in this way, whereby a signal occurs at its output Q, which is transferred through a prize-individual output 16 of the step switch device 14 to the activation input 17 of a prize display element 18 so that the prize achieved is viewable.

The step switch device 14 has a placement input and an output for each of the prizes determined by the prize scanning device 11. When such a prize-individual placement input is energized, the corresponding output is subsequently energized, which is also connected to the prize display element making the respective prize viewable.

The prize display elements are arranged in the shape of an increasing prize graduating band 19, which begins with the lowest prize from the bottom with a prize display element, and the successive prize display element of which, for instance 20, makes double the prize amount viewable, in this case DM 1.60. The next higher prize of DM 3.20 may not be awarded directly according to legal regulations so that two special games serve as equal substitute for the monetary prize in this case.

The outputs, for instance 16, of the step switch device 14 are also connected to a balance counter 21, or a special game counter 22, each via a gate 23, or 24. The gates 23, or 24 can be connected by guarantee signals so that the status of each counter 21, or 22 can be increased by the amount corresponding to the prize. The guarantee signals are each fed to the gates 23 and 24 via a key 25 and 26 to be activated by the player. Upon activation, the key 25 responsible for the monetary prize treatment performs this task, i.e. in its activated state, and the key 26 responsible for the special game treatment performs this task automatically in its resting state. In case of non-activation of key 25, or after activation of key 26, a request signal is transferred to the random generator 27, which contains a drum-shaped rotating body 28, which carries as many upwards pointing arrows as downwards pointing arrows 28' on its surface, which can be viewed from the outside through a window 29 in the front glass panel 2 even during rotation. The rotation occurs at an adjusted slow speed for such a time period until it is immobilized at random into its resting position, whereby a changeover switch 30 is lead from its zero position in order to create one of two possible contacts regardless of the direction of the displayed arrow 28'. In the case of an upwards pointing arrow 28', an impulse input 31 of the step switch device 14 is energized. This results in the memory contents being pushed up one level so that the next prize display element makes double the prize viewable.

In the case of a downwards pointing arrow 28', an impulse input identified by 32 of the step switch device 14, which is the reset input R, energized, which causes the cancellation of the memory placement.

In the case of an upwards pointing arrow 28', this causes an additional prize of 100% of the already achieved prize, and in the case of a downwards pointing arrow 28' this causes a complete loss. As both arrow positions occur at the same frequency, there is no long-term change of the payout quota.

A modified way of making additional prizes possible is that the amount of arrows 28' pointing downwards on the rotating body 28 of the random generator 27 is selected at double the amount of the arrows 28' pointing upwards. Accordingly, a placement status-reducing result output 33 of the random generator 27 is activated twice as often as a placement status-increasing result output 34, whereby the result outputs 33 and 34 are the contacts of the changeover switch 30 at zero position. Unlike in the previously mentioned example, the reducing result output 33 is connected to an impulse input 35 of the step switch device 14 acting as a step switch input. The positive flank of an incoming impulse therefore causes the resetting of the placement by one level. If the prize falls below the lowest level, to which a prize of DM 0.20 is assigned (broken line), a consolation prize of DM 0.10 is directly switched to the balance counter 21. In each case, the resetting of the placement causes a loss of 50% of the already achieved prize. This also does not cause a general change of the payout quota.

The step switch device 14 is a slide register with parallel placement inputs, for instance 13, and parallel outputs, for instance 16, with tact impulse inputs 31 and 35 for sliding the placement up or down, as well as with a

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cancellation impulse input 32 as the reset input *R*.

Beneficially, an electro-magnetically activated roll counter system (not illustrated) can be used instead of the slide register 14, on which the prize display elements are contained, which can be viewed on a roll surface via an additional window in the front glass panel 2, whereby the band 19 becomes a loop. Such a roll counter system is naturally placed in series so that the outputs, for instance 12, which form a multiple of spaces, of the prize scanning device 11, must be fed to the parallel series transformation via a marker. The marker beneficially forms one unit with the roll counter system. The benefit supplied by such a roll counter system is that only a modular component is required for memory storage, step connection, and display on one hand, while it requires no buffer means for saving the memory contents in case of a power outage on the other hand, as in common in the use of a slide register, for instance in form of batteries.

In addition to the band identified 19, which contained on the front glass panel 2 as illustrated in Fig. 1, a second band 36 is illustrated, the prize display elements of which display prizes that are each higher by half of the amount than those of the first band 19. The prize display elements of the second band 36 are activated by a second step switch device, which is not illustrated for reasons of clarity. By adding the second band 36, a fine prize graduation is achieved, while the possibility of doubling the prize is maintained.

2 pages of drawings

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DRAWINGS PAGE 2

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[see source for drawing]

Sonderspiele = bonus games
Monespeicher = [illegible] memory

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